

CLAIMS

1. A radio communication apparatus comprising:

an acquirer that acquires a parameter comprising an indicator of a propagation environment in which pilot symbols are transmitted;

5 a pilot pattern selector that selects a pilot pattern indicating positions of the pilot symbols in a frequency domain and a time domain according to the parameter acquired; and

10 a transmitter that transmits a signal including information of the pilot pattern selected.

2. The radio communication apparatus according to claim 1, wherein:

15 the acquirer has an interference amount measurer that measures an amount of interference caused by signals transmitted from a radio communication apparatus other than a communicating party or by multipath signals; and

the pilot pattern selector selects a pilot pattern 20 whereby a proportion of the pilot symbols is greater when the amount of interference increases.

3. The radio communication apparatus according to claim 2, wherein the interference amount measurer measures the 25 amount of interference using the pilot symbols contained in a received signal.

4. The radio communication apparatus according to claim 1, wherein:

the acquirer has a delay dispersion measurer that measures delay dispersion indicated by delayed waves of 5 a received signal; and

the pilot pattern selector selects a pilot pattern whereby the pilot symbols are densely arranged in the frequency domain when the delay dispersion increases.

10 5. The radio communication apparatus according to claim 4, wherein the delay dispersion measurer generates a delay profile of the received signal and measure the delay dispersion.

15 6. The radio communication apparatus according to claim 4, wherein the delay dispersion measurer stores in advance the delay dispersion corresponding to a shape of a cell to where the radio communication apparatus belongs.

20 7. The radio communication apparatus according to claim 1, wherein the acquirer has a moving speed estimator that estimates moving speed of the apparatus or a communicating party, and the pilot pattern selector selects a pilot pattern that the pilot symbol is densely configured in 25 the time domain as the moving speed increases.

8. The radio communication apparatus according to claim

7, wherein the moving speed estimator estimates the moving speed based on a variation in reception power of the pilot symbols contained in the received signal.

5 9. The radio communication apparatus according to claim 1, further comprising: a modulation scheme selector that selects a modulation scheme of data transmitted from a communicating party,

wherein the pilot pattern selector selects the pilot
10 pattern corresponding to the parameter and a modulation level of the modulation scheme selected in the modulation scheme selector.

10. The radio communication apparatus according to claim 9, wherein the pilot pattern selector selects a pilot pattern where the pilot symbols are densely arranged in the time domain or in the frequency domain when the modulation level of the modulation scheme selected in the modulation scheme selector increases.

20

11. The radio communication apparatus according to claim 9, further comprising:

an adder that adds to the parameter an offset with a value that varies with the modulation level of the
25 modulation scheme selected in the modulation scheme selector,

wherein the pilot pattern selector selects the pilot

pattern according to the parameter with the offset added thereto.

12. The radio communication apparatus according to claim
5 9, wherein the pilot pattern selector selects a pilot pattern obtained by further inserting a number of pilot symbols in accordance with the modulation level of the modulation scheme selected in the modulation scheme selector to the pilot pattern selected according to the
10 parameter.

13. The radio communication apparatus according to claim 1, wherein:

the transmitter transmits a signal containing pilot
15 symbols arranged according to a pilot pattern set per time slot; and

the pilot pattern selector selects a pilot pattern for each of a plurality of communicating parties.

20 14. The radio communication apparatus according to claim 13, further comprising an assigner that assigns a time slot to each of the plurality of communicating parties based on the pilot pattern selected in the pilot pattern selector.

25

15. A pilot symbol transmission method comprising:
acquiring a parameter comprising an indicator of

a propagation environment in which pilot symbols are transmitted;

selecting a pilot pattern indicating positions of the pilot symbols in a frequency domain and a time domain
5 according to the parameter acquired; and

transmitting a signal including information of the pilot pattern selected.